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PCT App. No.: PCT/FI00/00419

31. A method for the manufacture of paper, in which paper stock is fed from a headbox to a wire section in which water is drained from a paper web, in which method the paper web is passed from the wire section to a press section to press water out of the paper web, and in which method, after the press section, the paper web is dried in a dryer section, precalendered and precoated in a precoater, after which the paper web is dried in a drying section and coated in at least one coating station, after which the paper web is dried in at least one drying section, calendered in a calender, and reeled in a reel-up, wherein:

the stock is fed into the headbox from a short circulation the stock volume of which has been minimized;
in the wire section, water is drained from the paper web in a former;
in the press section, water is pressed out of the paper web in at least one extended nip press;
in the dryer section, at least part of the drying of the paper web is carried out by means of impingement drying;
the paper web is precalendered in a calender employing low nip loads;
both surfaces of the paper web are precoated at the same time;
after precoating, the paper web is dried by contact-free drying;
the paper web is coated in at least one on-line coating station, after which the paper web is at least partly dried in at least one drying section by contact-free drying of the paper web; and
the paper web is calendered in an on-line calender while the linear load in each nip is regulated separately.

32. The method of claim 31 wherein the basis weight profile is controlled by consistency adjustment in the headbox in order to affect the fibre orientation of the paper web by controlling the profile.

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33. The method of claim 31 wherein a shoe press is used as the extended nip press.

34. The method of claim 31 wherein two felts or a felt and a transfer belt are used in the press nips in the press section.

35. The method of claim 31 wherein the amount of surface size / pigment used in precoating is profiled.

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36. The method of claim 31 wherein combinations of impingement drying and cylinder drying or non-web-contacting drying and cylinder drying are applied to the drying of paper in order to accomplish a fast grade change.

37. The method of claim 31 wherein, in connection with the contact-free drying carried out after precoating and coating, the drying of the paper web is profiled by a profiling device.

38. The method of claim 31 wherein a coating device of the blade, jet or spray type is used in the coating.

39. The method of claim 31 wherein the paper web is measured by sensors fixed to a transverse beam in order to monitor properties of the paper web, and that the profiling of the properties of the paper web is controlled based on the measurement results.

40. The method of claim 31 wherein the drying of the paper web in the dryer section is profiled by using impingement drying.

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41. The method of claim 31 wherein a moistening device based on steam or water mist, placed before the calender, is used for profile control of curl.

42. The method of claim 31 wherein precalendering against a cylinder or a roll is used in the dryer section.

43. The method of claim 31 wherein the paper web is supported by belts in the end part of the paper machine.

44. The method of claim 31 wherein principal drying in the after-drying units is carried out without contact with the web.

45. The method of claim 31 wherein low linear loads are used in the precalender.

46. The method of claim 45 wherein the linear loads used in the precalender are below 80 kN/m.

47. The method of claim 31 wherein precalendering is carried out using an extended nip calender.

48. The method of claim 31 wherein fine paper is manufactured using layering of fibres and/or additives and/or fillers.

49. The method of claim 31 wherein the paper formed is fine paper.

50. The method of claim 31 wherein the former is a gap former.

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51. A paper machine line comprising:
a short circulation, the stock volume of which has been minimized;
a headbox;
a wire section, comprising a former;
a press section, comprising at least one extended nip press;
a dryer section, at least part of which is based on impingement drying;
a precalender;
a precoater and a drying section after that;
a coating station/stations and after-drying section/sections;
a calender and a reel-up;
a paper web precoater which coats both sides of the paper web at the same time;
at least one on-line coating station;
at least one drying section substantially based on contact-free drying placed after
said at least one on-line coating station; and
an on-line calender in which the linear loads in each nip can be regulated
separately.

52. The paper machine line of claim 51 wherein the paper machine is for the
manufacture of fine paper

53. The paper machine line of claim 51 wherein the on-line calender is a
multi-nip calender.

54. The paper machine line of claim 51 wherein the headbox is a multi-layer
headbox.

55. The paper machine line of claim 51 wherein the wire section is a gap
former.

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56. The paper machine line of claim 51 wherein a latter nip of the press section is an extended nip press.

57. The paper machine line of claim 51 wherein in the press nips of the press section there are two felts or a felt and a transfer belt.

58. The paper machine line of claim 51 wherein the coater is a coating device of the blade, jet or spray type.

59. The paper machine line of claim 51 wherein its drying sections comprise as a combination both cylinder drying and impingement drying or cylinder drying and non-web-contacting drying.

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60. The paper machine line of claim 51 wherein the after-drying sections are dimensioned so that principal drying takes place without contact with the web.

61. The paper machine line of claim 51 wherein the paper machine line comprises a moistening device based on steam or water mist, placed before the calender, for profile control of curl.

62. The paper machine line of claim 51 wherein the drying section comprises a precalendering device placed against a cylinder or a roll.

63. The paper machine line of claim 51 wherein the paper machine has an end part which comprises belt support of the paper web.

64. The paper machine line of claim 51 wherein the precalender of the paper machine line is a soft or extended nip calender.